USER MANUAL

SWAGING MACHINE HE425

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WARRANTY CONDITIONS

1. Note that all machines undergo strict testing before shipment.

2. All machines are warranted against any defects for a period of 6 MONTHS starting from the date of delivery to the customer. The company reserves the right to require a copy of the sales invoice.

3. We must verify defects. Therefore, each defective item must be returned to our address with SHIPPING CHARGES PREPAID. We will return the item with CARRIAGE FORWARD. ANY DELIVERIES TO OUR COMPANY WITH CARRIAGE FORWARD WILL BE SENT BACK TO THE SENDER.

4. This warranty covers replacement and repair of any component found to be defective.

5. Replacements and repairs completed under this warranty cannot extend its 6 months validity.

6. This warranty does not cover any damages caused by deterioration from use.

7. This warranty is not valid for damage resulting from incorrect operation, or use not in compliance with the machine instructions.

8. This warranty is not valid in case of unauthorised machine modification.

9. This Instruction Manual is also to be considered as a warranty certificate, with validity commencing from the date indicated on the freight bill.

EC DECLARATION OF INCORPORATION.

MANUFACTURER

ENDEAVOUR INTERNATIONAL LTD.
13 THE MALTINGS INDUSTRIAL ESTATE.
BATH.
ENGLAND.
BA1 3JL.

MACHINERY DESCRIPTION.

An eight segment hose assembly swaging head.

MODEL :- HE425

SERIAL NO.

WARNING.

This machinery must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive.

Engineering Director.

This Declaration only applies when incomplete / un-powered equipment is supplied by the Manufacturer

SAFETY REGULATIONS

Always work in safe conditions and with the necessary space around the machine. Ensure that the machine is placed on a stable and appropriate working surface.

1. DO NOT USE the equipment before reading the user manual.
2. CAUTION! If improperly used, the equipment may be dangerous and may cause injury. Do not touch any moving parts.
3. CAUTION! It is absolutely essential that all working operations are carried out *by one operator only*
4. This manual must be provided for the machine operator. Ensure that the operator is aware of his/her responsibilities.
5. Guards must never be removed or tampered with.
6. (Where applicable) A fully trained and competent electrician must connect the machine to the appropriate electricity supply.
7. Always wear protective gloves, safety glasses and appropriate clothing.
8. (Where applicable) Disconnect the power supply before removing any covers, or attempting any maintenance of the machine
9. Only original spare parts can be used in the maintenance of the machine.

TECHNICAL DATA

TECHNICAL/DIMENSIONAL DATA	HE425
Capacity	3/16”-11/2” (2 wire) R1AT & R2AT 3/16”-1” (4 wire) R9R/4SP
Pressure requirements for **optional** air/hydraulic power pack	7 bar (100 psi)
Packed Dimensions in mm (**excluding optional power packs**)	520x730x800
Controls	Twin speed hand pump (10,000 psi)
Voltage (Volts) **optional** electrical power pack	220-1-50HZ or 12volt dc 255-440V/60HZ
Weight (Kg) without optional power pack	85
Noise level	Not exceeding 70dB

HANDLING/TRANSPORT

The machine will normally be shipped bolted to a wooden pallet . The bolts should be removed and the machine lifted onto the work place using suitable lifting equipment.

PRELIMINARY CHECKS

Place the machine on a stable surface.

Where applicable, ensure that the power supply line is fitted with a differential safety breaker and overload cutout.

LIGHTING

The equipment does not have its own lighting and so it must be used in a suitably illuminated area.

ROUTINE MAINTENANCE

Ensure that moving parts are always lightly greased.
Where applicable check periodically that the limit switches and emergency controls are in good working order.

OPERATING INSTRUCTIONS.

A hand operated hydraulic pump operates the machine. (Item 1,Fig.1). When the release valve (Item 2,Fig.1) is closed and the pump operated, the swaging head will close and a hose assembly can be swaged.

To release the finished assembly unscrew the release valve two turns.

To operate the machine, select the appropriate die set using the die chart (Fig 3) in conjunction with the finished swage size required. Slide the dies into the slot and ensure each die segment is fully supported by the die holder. (item 5, fig 2)

Set the micrometer (Item1 ,Fig 2) to the required setting as determined from the swaging chart. The numbers must be aligned with the indicator mark the calibrator can be set at any intermediate position as required.

Close the release valve and operate the pump to close the dies onto the assembly to be swaged. Ensure the ferrule is within the die length before proceeding.

Operate the pump until the indicator rod (Item 2, Fig.2) is level with the top of the micrometer adjuster. The swage is now complete. Initial swages should be checked for swage size.

To remove completed assembly, unscrew the release valve and allow the machine to open. The machine opening can be stopped by closing the release valve and need not be fully opened each time.

RECALIBRATION

1. Fit the H28 die set to the machine
2. Set the calibrator to read 2 on the vertical strip and zero on the round band.
3. Operate the machine and close the dies onto a 30mm diameter mandrel. When the dies are closed onto the mandrel, operate the pump for a further five full strokes to apply pressure to the mandrel.
4. Alter the adjusting screw to bring the indicator rod level with the top of the calibrator and then lock into position with the nut.
5. Remove the mandrel and reset the calibrator to 4 on the vertical scale and produce a swage.
6. Check the finished swage size. If the size is not within 0.1mm repeat the calibration procedure.

PROCEDURE TO BLEED THE SYSTEM

1. Ensure the piston is fully retracted. Remove the bleed screw (item5, fig 1) and the oil filler plug (item 3, fig 1)
2. Slowly operate the pump to expel any air from the system. The system is free from air when clear oil is being expelled through the bleed hole.
3. Replace and tighten the bleed screw.
4. Replenish the pump with SAE10 oil to the top of the tie rod (item 4, fig 1) and replace the oil filler plug. **DO NOT OVER FILL**

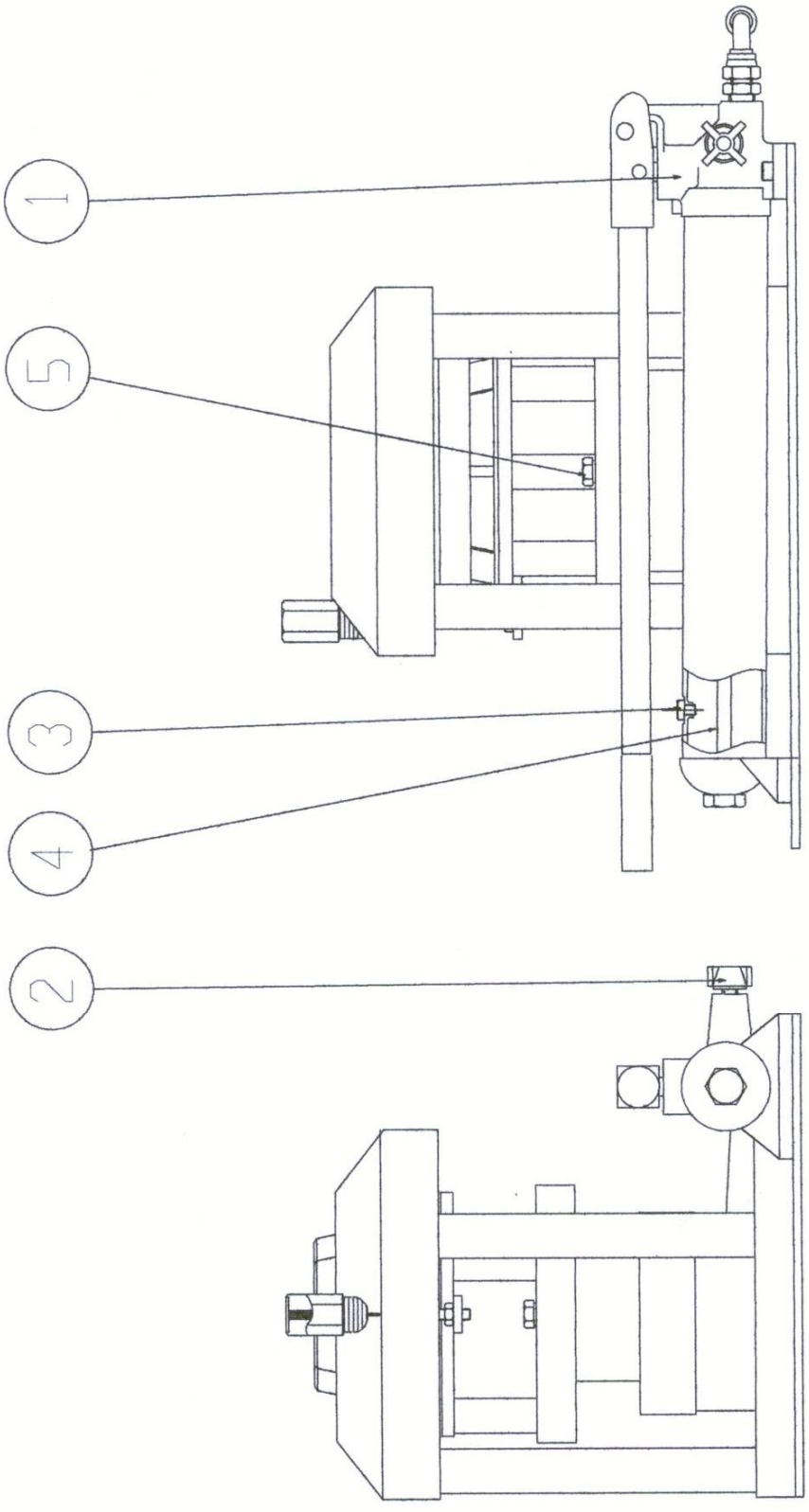
MAINTENANCE AND SERVICE.

For machines in regular use it is recommended that a monthly check on the oil level in the pump is carried out. To check oil level, first ensure the machine is fully open and then remove the oil filler (Item 4,Fig.1). The oil should be level with the top of the tie rod (Item 5,Fig.1), that passes through the centre of the pump. If required top up with SAE 10 hydraulic oil. DO NOT OVER FILL.

The sliding surfaces of the machine must be regularly lubricated with molybdenum disulfide based grease.

At yearly intervals it is recommended that the calibration of the machine is checked in accordance with the calibration instructions.

FIG 1



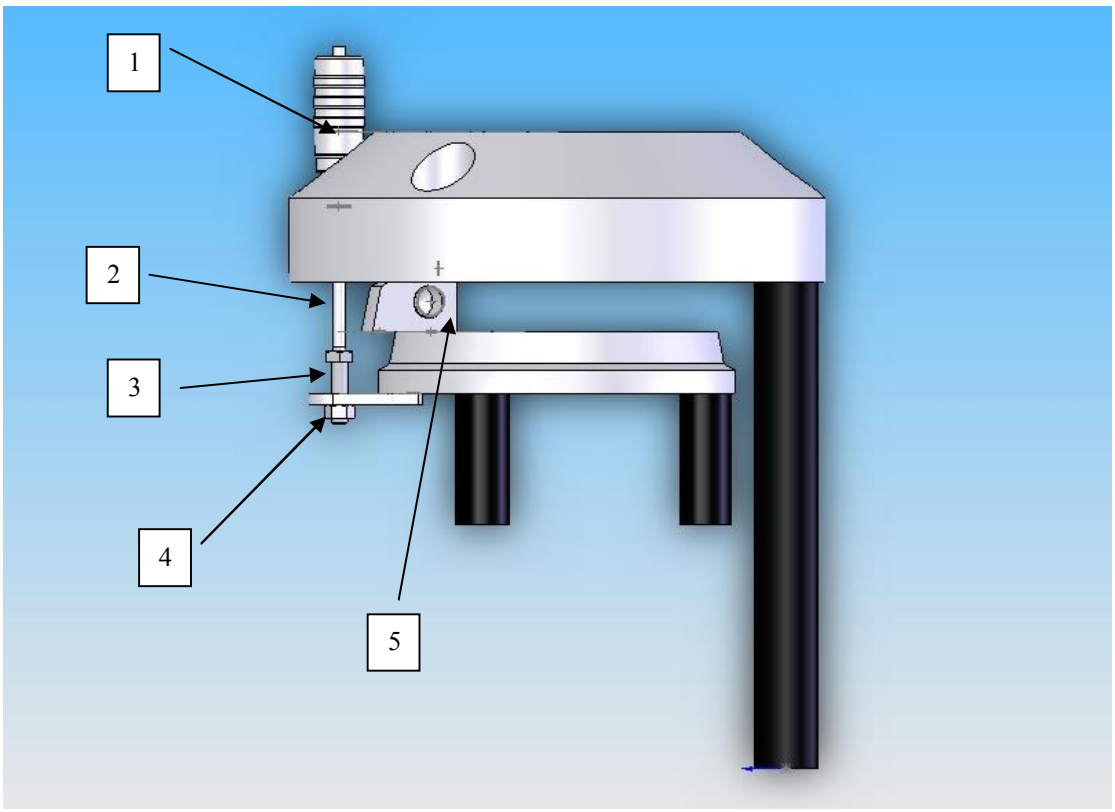


FIG 2.

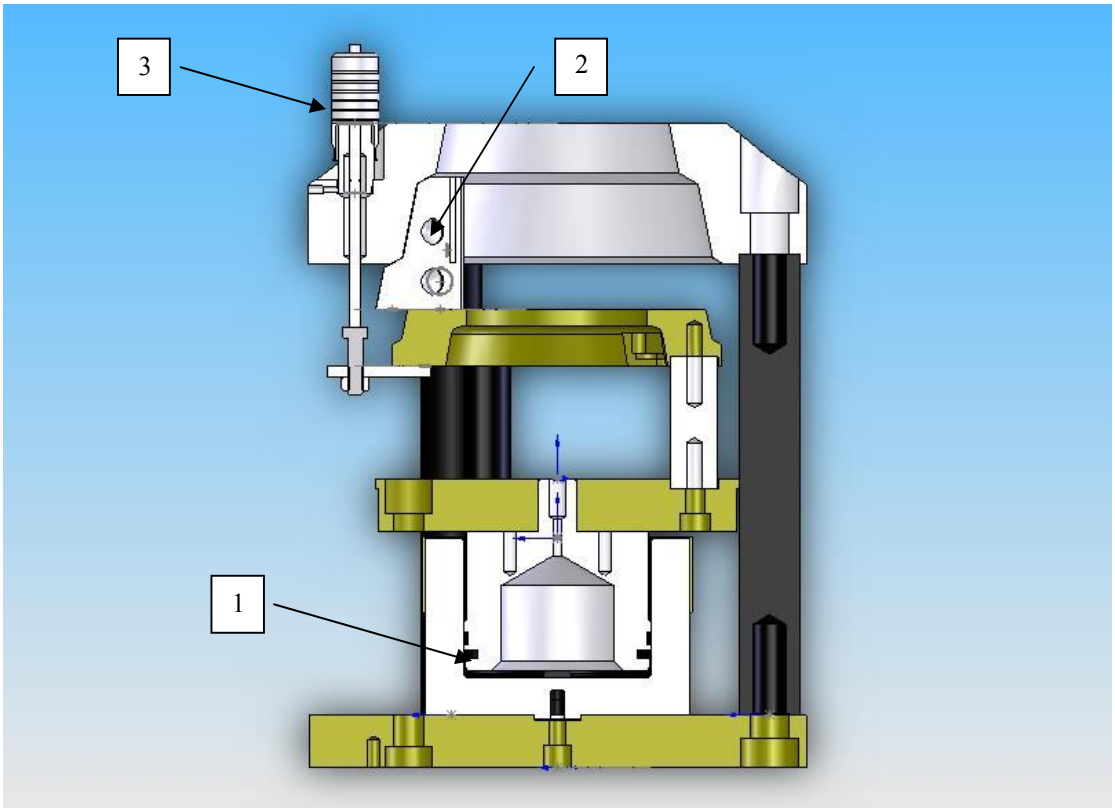
SWAGE CHART

DIE	RANGE (mm)	L(mm)	Ferrule max mm
*06	06.0-07.9	40.00	18.00
*08	08.0-09.9	40.00	20.00
*10	10.0-12.9	40.00	22.00
*13	13.0-15.9	40.00	25.00
16	16.0-21.9	40.00	28.00
22	22.0-27.9	50.00	34.00
28	28.0-33.9	50.00	40.00
34	34.0-39.9	60.00	46.00
40	40.0-45.9	60.00	52.00
*46	46.0-51.9	70.00	58.00
*52	52.0-57.9	70.00	64.00

*These dies not supplied as standard.
Calibration setting: select die set.
Micrometer setting = finished swage size – die size.
Example: To end up with a finished swage of 26mm.
Select 22 die, **micrometer setting** = 26-22 **= 4mm**.

HE425 SPARE PARTS LIST

Item No	Part No	Description
1	300-093	Seal Kit
2	300-091	Spring Kit
3	300-092	Calibrator Assembly



OPTIONAL AIR/HYDRAULIC POWER PACK (700 BAR.)

SETTING INSTRUCTIONS.

Connect the hose from the Swaging Head to the outlet connection of the pump as indicated. Ensure pressure rating of the hose is suitable for 700 Bar operation.

AIR SUPPLY.

Connect a suitable air supply to the air inlet connection of the foot pump as indicated.
N.B. The air must be supplied using a filtered and lubricated supply, regulated to a MAXIMUM operating pressure of 7 Bar (100psig).

PROCEDURE TO BLEED THE SYSTEM

The system will require bleeding if the foot pump was not supplied assembled to the machine. The swaging machine will require positioning vertically, with bleed screw facing upwards.

To bleed the system press down on the foot pedal and operate until the machine piston raises approximately 15 to 20 mm. Release the foot pedal but do not operate the release to lower the piston.

Loosen the bleed screw but do not remove, it is located in the centre of the top face of the piston.

Air will be heard escaping from the bleed screw hole. When oil is seen at the bleed screw hole and no more air is expelled, retighten the bleed screw. This operation may need to be repeated if excess oil was lost whilst fitting the pump, or if the operation of the unit is found not to be smooth. If the power pack requires additional oil use ISO 32 oil where indicated.

OPERATING THE FOOT PUMP.

Set the Swaging Machine as stated in the operating manual.
Press down the Foot Pedal to close the head and perform the swage.
Release the Foot Pedal when the Calibration Indicator reaches its set position.
To open the Head press down on the release part of the Foot Pedal.
The head need not be fully opened after each operation and can be stopped at any position by releasing the Foot Pedal.